

**Applications**

- VHF and UHF wide band amplifier

**Features**

- Power gain

$G_P = 12.4 \text{ dB}$  at  $V_{DS} = 4.5 \text{ V}$ ,  $I_{Dset} = 200 \text{ mA}$ ,  $f = 470 \text{ MHz}$

$G_P = 14.7 \text{ dB}$  at  $V_{DS} = 6.0 \text{ V}$ ,  $I_{Dset} = 200 \text{ mA}$ ,  $f = 470 \text{ MHz}$

- Output power

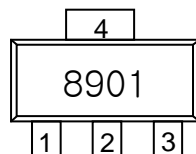
$P_{OUT} = 32.4 \text{ dBm}$  at  $V_{DS} = 4.5 \text{ V}$ ,  $I_{Dset} = 200 \text{ mA}$ ,  $f = 470 \text{ MHz}$

$P_{OUT} = 34.7 \text{ dBm}$  at  $V_{DS} = 6.0 \text{ V}$ ,  $I_{Dset} = 200 \text{ mA}$ ,  $f = 470 \text{ MHz}$

- Drain efficiency

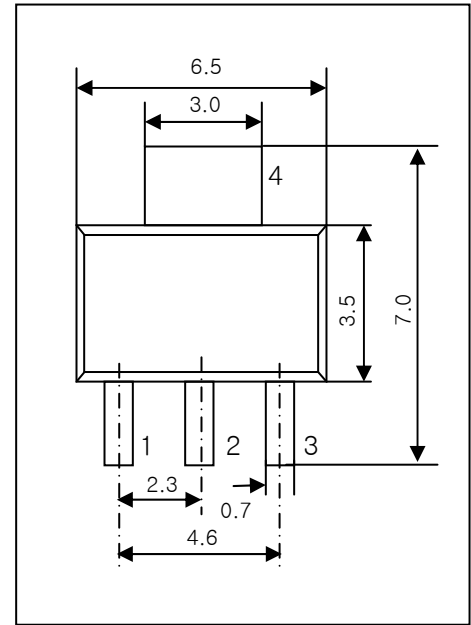
$\eta_D = 60 \%$  (typ.)

**Marking**



**SOT-223**

Unit in mm



**Pin Configuration**

- 1. Gate
- 2. Source
- 3. Drain
- 4. Source

**Absolute Maximum Ratings ( $T_A = 25 \text{ }^\circ\text{C}$ )**

Parameter	Symbol	Ratings	Unit
Drain to Source Voltage	$V_{DS}$	13.0	V
Gate to Source Voltage	$V_{GS}$	4.0	V
Drain Current	$I_D$	1.2	A
Total Power Dissipation	$P_{tot}$	5.0	W
Channel Temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-65 ~ 150	$^\circ\text{C}$

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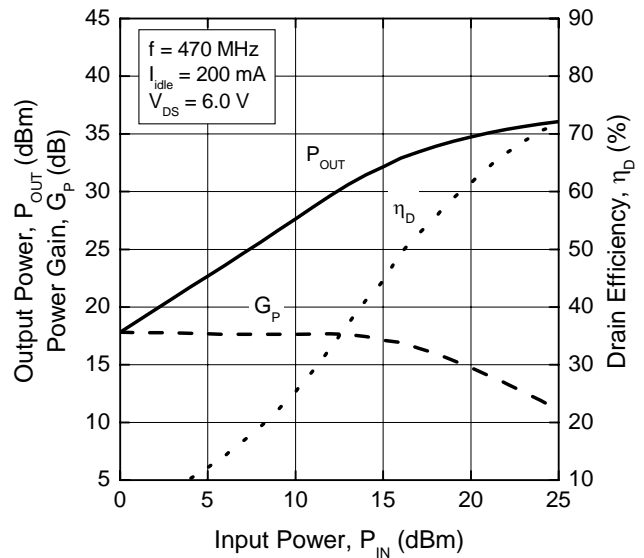
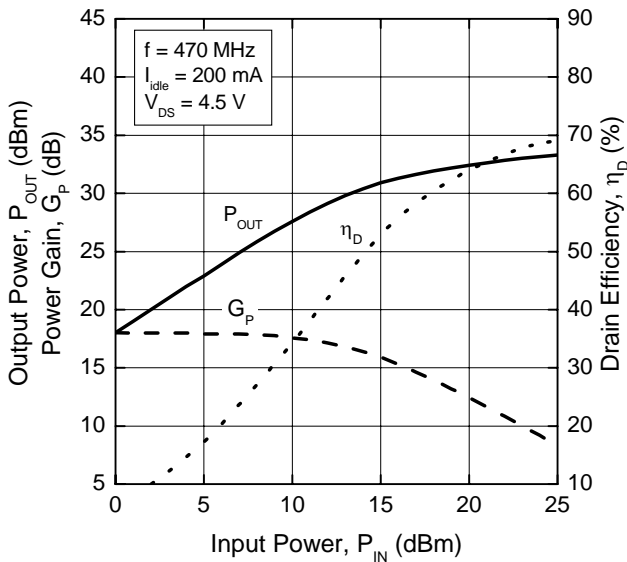
## □ Electrical Characteristics ( $T_A = 25\text{ }^\circ\text{C}$ )

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Gate to Source Leakage Current	$I_{GSS}$	$V_{GSS} = 3.0\text{ V}$	-	-	1	$\mu\text{A}$
Drain to Source Leakage Current	$I_{DSS}$	$V_{DSS} = 8.5\text{ V}$ , $V_{GS} = 0\text{ V}$	-	-	10	$\mu\text{A}$
Threshold Voltage	$V_{th}$	$V_{DS} = 4.8\text{ V}$ , $I_D = 1\text{ mA}$	0.8	1.0	1.4	V
Transconductance	$G_m$	$V_{DS} = 4.8\text{ V}$ , $I_D = 400\text{ mA}$	-	700	-	mS
Drain to Source Breakdown Voltage	$BV_{DSS}$	$I_{DSS} = 10\text{ }\mu\text{A}$	13	-	-	V
Drain to Source On-Voltage	$V_{DSon}$	$V_{GS} = 4\text{ V}$ , $I_D = 600\text{ mA}$	-	0.4	-	V
Power Gain	$G_P$	$f = 470\text{ MHz}$ , $P_{IN} = 20\text{ dBm}$ $V_{DS} = 4.5\text{ V}$ , $I_{Dset} = 200\text{ mA}$	11	12.4	-	dB
Output Power	$P_{OUT}$	$f = 470\text{ MHz}$ , $P_{IN} = 20\text{ dBm}$ $V_{DS} = 4.5\text{ V}$ , $I_{Dset} = 200\text{ mA}$	31	32.4	-	dBm
Operating Current	$I_{op}$		-	600	-	mA
Drain Efficiency	$\eta_D$		-	64	-	%
Power Gain	$G_P$	$f = 470\text{ MHz}$ , $P_{IN} = 20\text{ dBm}$ $V_{DS} = 6.0\text{ V}$ , $I_{Dset} = 200\text{ mA}$	13	14.7	-	dB
Output Power	$P_{OUT}$	$f = 470\text{ MHz}$ , $P_{IN} = 20\text{ dBm}$ $V_{DS} = 6.0\text{ V}$ , $I_{Dset} = 200\text{ mA}$	33	34.7	-	dBm
Operating Current	$I_{op}$		-	805	-	mA
Drain Efficiency	$\eta_D$		-	61	-	%

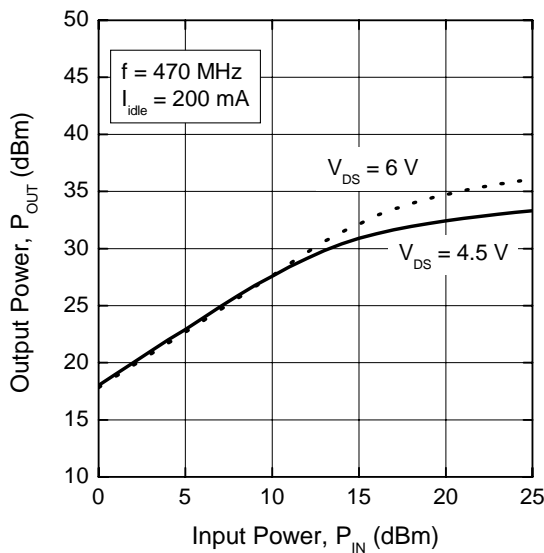
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□ **Typical Characteristics ( $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified)**

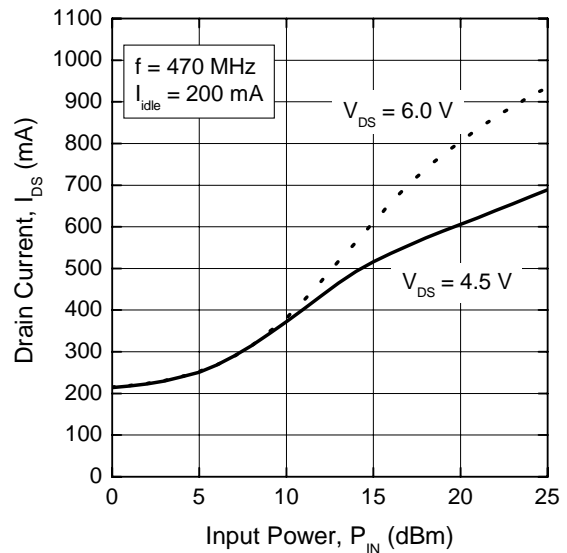
**Output Power, Power Gain, Drain Efficiency vs. Input Power**



**Output Power vs. Input Power**

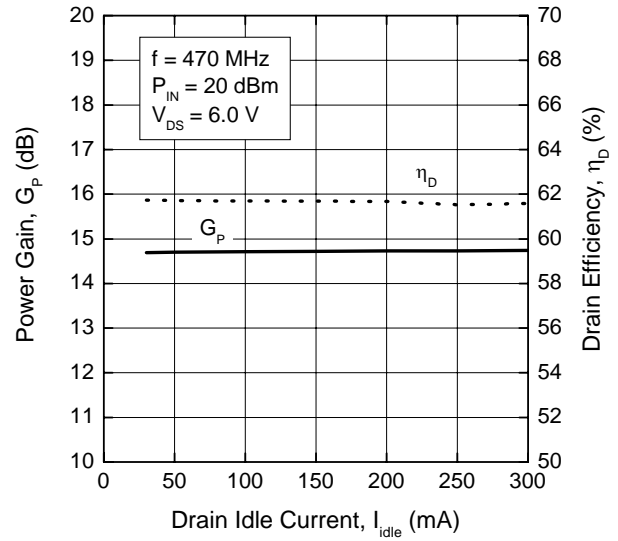
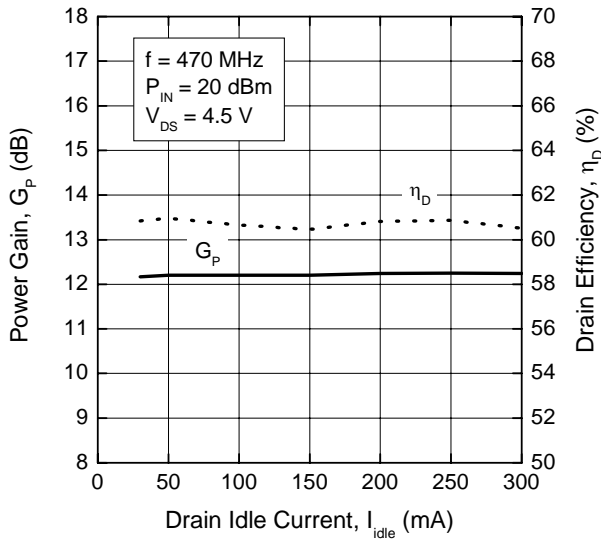


**Drain Current vs. Input Power**

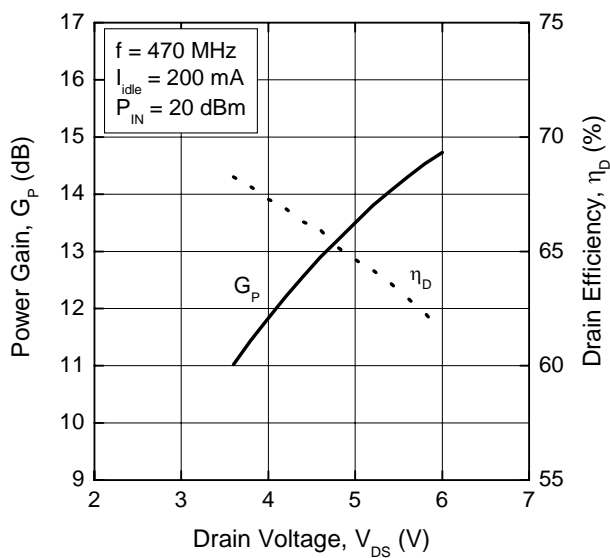


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**Power Gain, Drain Efficiency vs. Drain Idle Current**

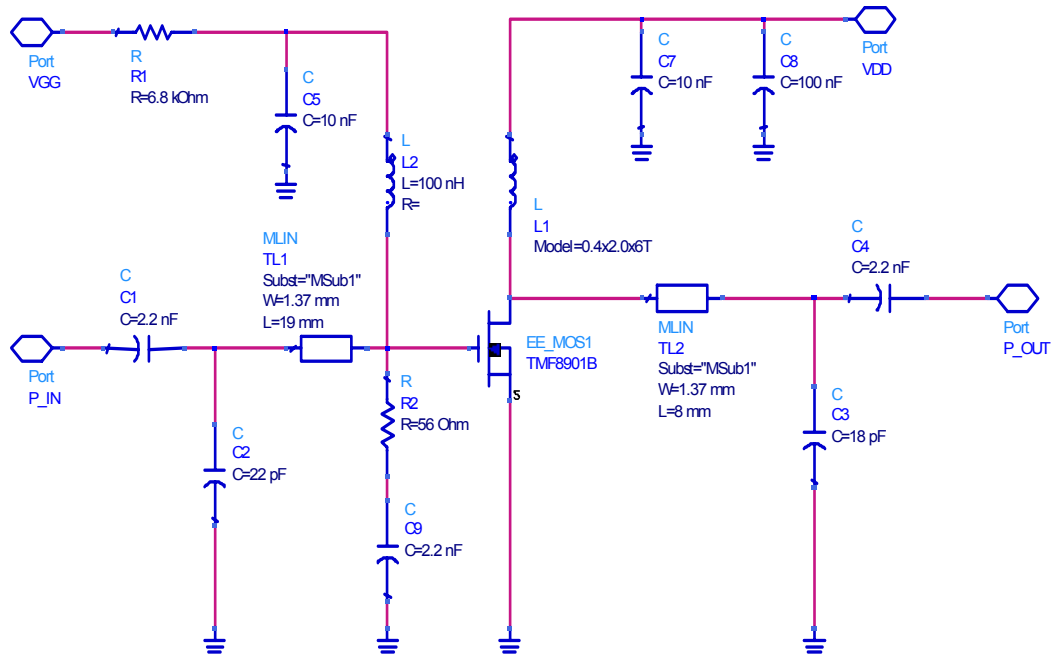


**Power Gain, Drain Efficiency vs. Drain Voltage**



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## □ Test Circuit Schematic Diagram



Test Board : 0.8mm FR4 glass epoxy